CLAIMS

1. Method for controlling the positioning of a biological element on a zone of a support, in which, this biological element being labelled with a tracer which emits a light radiation and the zone of the support on which it must be positioned being located in a layer of a material capable of trapping this light radiation:

a) the biological element is allowed to become positioned on the zone of the support;

b) the intensity of the light radiation trapped in said layer is measured; and

c) the positioning of the biological element is determined by comparing the intensity value thus measured with at least one reference value;

it being possible for steps a), b) and c) to be carried out successively or simultaneously.

2. Method according to Claim 1, in which the biological element is labelled with a fluorescent tracer.

3. Method according to Claim 2, in which the fluorescent tracer is an organic fluorophore chemically coupled to one or more membrane proteins of the biological element, an antibody labelled with an organic fluorophore, which is directed against a membrane protein of the biological element and which is attached to this element by means of an antigen-

antibody reaction, or a fluorescent membrane protein which is expressed by the biological element.

4. Method according to any one of the preceding claims, in which the layer of material capable of trapping the light radiation is made of an organic or mineral glass, of silica, of silicon nitride, of titanium dioxide, of hafnium dioxide, of alumina, of silica loaded with potassium or silver ions, or of a synthetic polymer.

5. Method according to any one of the preceding claims, which comprises, prior to step a) or between steps a) and b), a step consisting in providing the support with means for extracting the light radiation trapped in the layer of material capable of trapping the light radiation.

6. Method according to Claim 5, which comprises, prior to step a) or between steps a) and b), a step consisting in placing, opposite the layer of material capable of trapping a light radiation, means for collecting the light radiation extracted from this layer.

7. Method according to any one of the preceding claims, in which the positioning of the biological element on the zone of the support comprises the sealing of this element on said zone.

8. Method according to Claim 7, in which, since the zone of the support on which the biological element must be sealed consists of the edges of a through-opening made in this support, step a) comprises the creation of a low pressure in this opening.

9. Method according to Claim 8, in which steps a), b) and c) are carried out simultaneously.

10. Method according to any one of the preceding claims, in which the biological element is a cell.

11. Device (10, 30) for controlling the positioning of at least one biological element on at least one zone of a support, comprising:

- a support (11, 31) comprising a layer (13, 32) of a material capable of trapping a light radiation designed to be emitted by said biological element, and means for extracting the light radiation trapped in said layer, said zone (12, 36a-36d) of the support being located in said layer; and

- means (17, 40a-40d) for measuring the intensity of the light radiation extracted from said layer.

12. Device (10) according to Claim 11, in which the support is a tube open at both its ends and the zone (12) on which the biological element must be positioned is one of the two openings of this tube.

13. Device (10) according to Claim 12, in which the support is a micropipette (11), in particular a micropipette suitable for the implementation of the patch-clamp technique.

14. Device (30) according to Claim 11, in which the support is a planar support (31) and said zone on which the biological element must be positioned is an opening that this support comprises.

15. Device according to Claim 14, in which the opening is a through-opening (36a-36d).

16. Device according to Claim 15, in which the support is a planar support (31) suitable for the implementation of the patch-clamp technique.

17. Device according to any one of Claims 11 to 16, in which the layer (13, 32) of material capable of trapping the light radiation is made of an organic or mineral glass, of silica, of silicon nitride, of titanium dioxide, of hafnium dioxide, of alumina, of silica loaded with potassium or silver ions, or of a synthetic polymer.

18. Device according to any one of Claims 11 to 17, in which the layer (13, 32) of material capable of trapping the light radiation has a thickness of at least 200 nm.

19. Device according to any one of Claims 11 to 18, in which the means for extracting the light radiation consist of a raised area or a hollow or a series of raised areas and of hollows (14_1-14_4, 24, $48a_1$-$48a_4$, 58) made in one of the faces of the layer of material capable of trapping the light radiation.

20. Device according to any one of Claims 11 to 18, in which the means for extracting the light radiation consist of a component (34, 44_1-44_4, 54, 38a-38d) which is placed on one of the faces of the layer capable of trapping the light radiation, and which forms, on this face, a raised area or a series of raised areas and of hollows.

21. Device according to any one of Claims 11 to 18, in which the means for extracting the light radiation consist of a material (38a-38d) which is deposited onto one of the faces of the layer capable of trapping the light radiation, at one or more points of this face.

22. Device according to any one of Claims 11 to 18, in which the means for extracting the light radiation consist of an interruption of the layer capable of trapping the light radiation, by a material which is opaque with respect to the light radiation.

23. Device according to any one of Claims 19 to 21, in which, since the support is a planar support, the means for extracting the light radiation extend all the way

around the zone of this support on which the biological element must be positioned.

24. Device according to any one of Claims 11 to 23, which also comprises means (16, 39a-39d) for collecting the light radiation extracted from the layer capable of trapping the light radiation.

25. Device according to any one of Claims 11 and 14 to 24, in which, since the support is a planar support (31) comprising a plurality of zones for the positioning of a plurality of biological elements:

- the layer (32) of material capable of trapping the light radiation is divided up into as many parts (32a-32d) as there are zones on the support;
- each zone (36a-36d) of the support is located in one of these parts;
- these parts are separated from one another by means (35e-35f) suitable for preventing the light radiation from propagating from one part to the other; and
- for each part of said layer, the support comprises means (38a-38d) for extracting the light radiation trapped in this part, while the device comprises means (39a-39d) for collecting the light radiation extracted from this part and means (40a-40d) for measuring the intensity of the light radiation collected by said collecting means.

26. Device according to Claim 25, in which the layer (32) capable of trapping the light radiation is

supported by a layer (34) of a material which is opaque with respect to this light radiation, and the parts of the layer capable of trapping the light radiation are separated by projections (35a-35f) from the layer which is opaque with respect to the light radiation, extending into the thickness of the layer capable of trapping the light radiation.

27. Application of a method according to any one of Claims 1 to 10 or of a device according to any one of Claims 11 to 26 to the control of the establishment of a high-resistance seal between at least one biological element and at least one zone of a support by means of the patch-clamp technique.